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CONSTANCEA, A NEW GENUS FOR *ERIOPHYLLUM NEVINII* (COMPOSITAE–HELIANTHEAE S. LAT.)

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Abstract

A new genus, *Constancea*, for *Eriophyllum nevinii*, is erected in light of evidence that *Eriophyllum* is polyphyletic. *Constancea*, endemic to the southern Channel Islands of California, appears to be the sole representative of a lineage that diverged early in the history of either subtribe Baeriinae or the putatively-sister clade comprising most other $x = 19$ genera of helenioid Heliantheae (i.e., *Arnica*, *Eatonella* s. str., *Hulsea*, and *Venegasia*) plus Madiinae. Morphological characteristics of *Constancea* shared with other, closely related $x = 19$ helenioid lineages but rare or absent in the clade comprising *Eriophyllum*, *Pseudobahia*, and *Syntrichopappus* include well-developed petioles, phyllaries in more than one series and exceeding the number of ray florets, and pappus scales unequal or a longer pair opposite and ± equal.

Results of phylogenetic studies of helenioid Heliantheae lead me to conclude that *Eriophyllum* Lag. is not monophyletic. Based on rDNA trees, *E. nevinii* A. Gray, a subshrub endemic to the southern Channel Islands of southern California, appears to be more distantly related to other members of *Eriophyllum* sensu Constance (1937) than are *Pseudobahia* (A. Gray) Rydb., *Syntrichopappus* A. Gray, and, probably, all other members of Baeriinae Benth. (Baldwin and Wessa in press and in prep.). Mooring (1997) raised questions about the phylogenetic position of *E. nevinii* upon reporting chromosome counts for the species of $2n = 19$ II, a number not previously known for *Eriophyllum* or Baeriinae in general.

In a hypothetical phylogeny of *Eriophyllum* proposed by Mooring (1997), *E. nevinii* occupies a basal position in the group, from which taxa of lower chromosome number and, ultimately, of annual habit descended. Phylogenetic data from external and internal transcribed spacer sequences of 18–26S rDNA (Baldwin and Wessa in press and in prep.) together with chromosomal and morphological considerations lead me to conclude that *E. nevinii* is indeed distantly related to other members of *Eriophyllum*, including the morphologically and ecologically similar *E. staechadifolium* Lag. (the type species of *Eriophyllum*), and that the base chromosome number of all of Baeriinae may be $x = 19$. *Eriophyllum nevinii* appears to represent a basally divergent lineage either in Baeriinae or in the putatively-sister clade including almost all other $x = 19$ taxa in helenioid Heliantheae [i.e., *Arnica* L. (including *Mallotopus* Franch. & Sav. and *Whitneya* A. Gray), *Eatonella* A. Gray s. str., *Hulsea* Torr. & A. Gray, and *Venegasia* DC.] plus Madiinae Benth. sensu Carlquist (1959).

Morphologically, *Eriophyllum nevinii* possesses characteristics that are shared with one or more closely related $x = 19$ taxa or with pappose members of the Baeriinae genus *Monolopia* DC. [i.e., *M.* (*Lembertia*) *congdonii* (A. Gray) B. G. Baldwin], but are rare or absent in the clade comprising *Pseudobahia*, *Syntrichopappus*, and all other members of *Eriophyllum* sensu Constance (1937). For example, *E. nevinii* possesses well-developed petioles (as in at least some members of *Arnica*, *Hulsea*, and *Venegasia*), phyllaries in more than one series and exceeding the number of ray florets (as in *Hulsea*, *Venegasia*, and most species of *Arnica*), and pappus scales unequal or a longer pair opposite and ± equal (similar to pappi of *Eatonella*, *Hulsea*, and *Monolopia congdonii*).

On the basis of molecular, chromosomal, and morphological evidence, I propose a new genus for *Eriophyllum nevinii*. Other nomenclatural changes are necessary for members of the clade comprising *Pseudobahia, Syntrichopappus,* and *Eriophyllum* sensu Constance (1937) minus *E. nevinii* to provide a taxonomy of only monophyletic genera. Those changes must await completion of ongoing phylogenetic investigations (Baldwin and Wessa in prep.).

Constancea B. G. Baldwin, gen. nov.—TYPE: *Eriophyllum nevinii* A. Gray. ≡ *Constancea nevinii* (A. Gray) B. G. Baldwin.

A Heliantheae ceteris characteribus combinatis differt: habitu suffruticoso; foliis alternis petiolatis ≤ ca. 25 cm longis, laminis albo-tomentosis late ovatis plerumque bipinnatifidis; capitulescentiis corymbiformis capitulis confertis; involucris campanulatis ca. 3–5 mm diametris; phyllariis ca. 8–16 albo-tomentosis ca. 2 seriatis (numeris phyllariorum semper > numeris flosculis radiorum); flosculis radiorum 4–9, corollis flavis et laminis 2–3 mm longis; lobis corollarum flosculorum discorum 5; receptaculis epaleatis; cypselis atris; squamis papporum 2–6+, ± connatis basim, omnibus magnopere inaequalibus et irregularibus vel longiore pari

opposito et ± aequali, omnibus enervis, <2.5 mm longis; $2n=19$ II.

Subshrubs, to ca. 1 (–2) m high. *Stems* decumbent, branched mostly near base, ≤ ca. 1 cm diam., densely white-tomentose, to glabrate. *Leaves* alternate, petiolate, crowded along proximal stem, ≤25 cm long; blades broadly ovate, pinnatifid to mostly bipinnatifid into linear lobes, slightly revolute, densely white-tomentose on both surfaces to glabrate adaxially, lobe apices obtuse. *Capitulescences* corymbiform, sparsely leafy near base, minutely and sparsely bracteate distally, lightly tomentose to glabrate, the heads crowded. *Peduncles* mostly ≤5 mm long. *Involucres* campanulate, ca. 3–5 mm diam. *Phyllaries* ca. 8–16, more than number of ray florets, in ca. 2 series, narrowly linear to oblong, oblanceolate, or somewhat irregular in shape, the inner narrower than the outer, ca. 4–6 mm long, white-tomentose, apices obtuse. *Ray florets* 4–9, pistillate, fertile, corollas yellow, tubes ca. 2–3 mm long and glandular-hairy to nearly glabrous, laminae 2–3 mm long, ca. 1–2 mm wide, shallowly 2–3-lobed. *Disc florets* ca. 10–27, bisexual, corollas yellow, 2–4 mm long, the tubes shorter than the narrowly funnelform throats, sparsely glandular-hairy, 5-lobed. *Anthers* yellow. *Style branches* papillose adaxially. *Receptacles* flat or convex, epaleate, glabrous. *Cypselae* dull, black, prismatic or flattened, narrowly clavate, ca. 2–3 mm long, with scattered, minute, appressed hairs (mostly on angles) or ± glabrate. *Pappus scales* 2–6+, basally connate, whitish to tawny, highly irregular and unequal or a longer pair opposite and ± equal, unnerved, apically acute or erose, <2.5 mm long. *Chromosome number* $2n=19$ II (fide Mooring 1997).

Distribution and ecology. *Constancea* is endemic to three of the southern Channel Islands of southern California (Santa Barbara Island, Santa Catalina Island, and San Clemente Island), where populations occur in coastal sage scrub and on exposed cliffs. *Constancea* has been negatively impacted by grazing of feral ungulates and appears on List 1B (plants rare, threatened, or endangered in California and elsewhere) of the California Native Plant Society (Skinner and Pavlik 1994).

Constancea nevinii (A. Gray) B. G. Baldwin, comb. nov.—*Eriophyllum nevinii* A. Gray, Synoptical Flora of North America, Ed. 2. Vol. 1. Part 2 (New York: Ivison, Blakeman, Taylor, and Co.): 452. 1886.—TYPE: USA, California, San Clemente Island, "on rocks overhanging the sea" (in protologue), Apr 1885, *Nevin* (Rev. J. C. Nevin) *and Lyon* (W. S. Lyon) *s.n.* (holotype, GH!).

Constancea is named for Professor Emeritus Lincoln Constance, world-renowned plant systematist and Umbelliferae expert, who conducted his dissertation research under Willis Linn Jepson on the systematics of *Eriophyllum* and judged *E. nevinii* to be "a beautifully distinct . . . species."

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